(v) a DNA sequence that has at least 80% homology, as determined by hybridization under stringent conditions, to any one of the sequences of (i) to (iv) and code for a physiologically active protein; and

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(vi) a DNA sequence that hybridizes to the sequences of (i) or (iv), under highly stringent conditions, being hybridization to filter-bound DNA in 0.5M $NaHPO_4$, 7% sodium dodecyl sulfate (SDS), 1mM EDTA at 65°C, and washing in 0.1xSSC/0.1% SDS at 68°C, which can either be used as a probe for OFF1, or which encodes functionally equivalent gene product; and

(vii) a DNA sequence that hybridizes to the sequences of (i) to (iv) under moderately stringent conditions, e.g., washing in 0.2xSCC/0.1% SDS at 42°C yet which still encodes a functionally equivalent gene product.

30. (NEW) An expression vector comprising the DNA sequence of Claim 29.

31. (NEW) An expression vector according to Claim 30, being a plasmid.

32. (NEW) A genetically engineered host cell containing the DNA sequence of Claim 29, operatively associated with a regulatory element heterologous to the DNA sequence which directs the expression of the DNA sequence by the host cell.

33. (NEW) An amino acid sequence coded by the nucleic acid sequence of Claim 29.

34. (NEW) A DNA sequence which is complementary to at least a portion of any one of the sequences of Claim 29, capable of being transcribed to mRNA which is an anti-sense to at least a portion of the mRNA transcribed by any one of the sequences of Claim 29, said portion being sufficient to inhibit translation of the mRNA to protein.

35. (NEW) An anti-sense mRNA sequence transcribed from the DNA of Claim 34.

36. (NEW) A pharmaceutical composition comprising the expression vector of Claim 31.

37. (NEW) A pharmaceutical composition comprising the amino acid sequence of Claim 33.

38. (NEW) A pharmaceutical composition according to Claim 36, for immunization against cancer.

39. (NEW) A pharmaceutical composition according to Claim 37, for immunization against cancer.

40. (NEW) A pharmaceutical composition according to Claim 38, for immunization against breast cancer.

41. (NEW) A pharmaceutical composition according to Claim 39, for immunization against breast cancer.

42. (NEW) A pharmaceutical composition according to Claim 36, for the treatment of transplant rejections, autoimmune

diseases, pathological pregnancies and for enhancing fertilization rates during IVF treatment.

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43. (NEW) A pharmaceutical composition according to Claim 37, for the treatment of transplant rejections, autoimmune diseases, pathological pregnancies and for enhancing fertilization rates during IVF treatment.

44. (NEW) A pharmaceutical composition according to Claim 36, for use as a growth factor of bone-marrow progenitor cells.

45. (NEW) A pharmaceutical composition according to Claim 37, for use as a growth factor of bone-marrow progenitor cells.

46. (NEW) A pharmaceutical composition according to Claim 44, wherein the cells are granulocyte monocytes.

47. (NEW) A pharmaceutical composition according to Claim 45, wherein the cells are granulocyte monocytes.

48. (NEW) A growth factor for bone marrow progenitor cells comprising as an active ingredient the amino acid sequence of Claim 33.

49. (NEW) An expression vector comprising the DNA of Claim 34.

50. (NEW) A pharmaceutical composition comprising the expression vector of Claim 49.

51. (NEW) A pharmaceutical composition comprising the anti-sense mRNA sequence of Claim 34.

52. (NEW) A pharmaceutical composition according to Claim 50, for the treatment of cancer.

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53. (NEW) A pharmaceutical composition according to Claim 51, for the treatment of cancer.

54. (NEW) A pharmaceutical composition according to Claim 52 for the treatment of breast cancer.

55. (NEW) A pharmaceutical composition according to Claim 53 for the treatment of breast cancer.

56. (NEW) A pharmaceutical composition according to Claim 50, for the induction of abortion.

57. (NEW) A pharmaceutical composition according to Claim 51, for the induction of abortion.

58. (NEW) A method for the diagnosis of cancer comprising: detecting elevated to levels of mRNA transcribed from DNA sequences depicted in Fig. 1 or Fig. 4.

59. (NEW) A method according to Claim 58, wherein the cancer is selected from the group consisting of: breast cancer, hepatoblastoma, leukemia, Hodgkin's and non-Hodgkin's lymphomas and embryonal tumors.

60. (NEW) A method for the detection of Downs' Syndrome, comprising detecting elevated levels of mRNA transcribed from the DNA sequence of Fig. 1 or 4.

61. (NEW) A method for the detection of pathological

pregnancies comprising detecting decreased levels of mRNA transcribed from the DNA sequence of Fig. 1 or 4.

62. (NEW) A method according to Claim 61, wherein the pathological pregnancy is selected from the group consisting of: spontaneous abortion and miscarriage, premature contractions, toxemia, premature delivery.

63. (NEW) A method according to Claim 58, wherein the level of the DNA expression is detected using AT-PCR.

64. (NEW) A method for isolating the DNA sequence of Fig. 1 or 4, substantially as hereinbefore described.

65. (NEW) A method for the treatment of an individual in need of such treatment comprising: administering to a subject in need of such treatment a therapeutically effective amount of the expression vector of Claim 31.

66. (NEW) A method for the treatment of an individual in need of such treatment comprising: administering to a subject in need of such treatment a therapeutically effective amount of the amino acid sequence of Claim 33.

REMARKS

Claims 29-66 presently appear in this case. The above amendments to the claims are being made in order to place the claims into better condition for examination.

Favorable consideration and allowance are earnestly solicited.

Respectfully submitted,
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